

GCS Middle School Science Vertical Alignment Chart

	Courses		
Strands <i>(Goals previously taught)</i>	6th Grade	7th Grade	8th Grade <i>(Connection with High School Course)</i>
Earth/Universe 3.E.1 (<i>Earth/Moon</i>) 4.E.1 (<i>Phases of Moon</i>)	6.E.1 Understand the earth/moon/sun system, and the properties, structures and predictable motions of celestial bodies in the Universe.		
Earth systems 3.E.2 (<i>Water/Land Structures</i>) 5.E.1 (<i>Weather Patterns</i>)	6.E.2 Understand the structure of the earth and how interactions of constructive and destructive forces have resulted in changes in the surface of the Earth over time and the effects of the lithosphere on humans.	7.E.1 Understand how the cycling of matter (water and gases) in and out of the atmosphere relates to Earth's atmosphere, weather and climate and the effects of the atmosphere on humans.	8.E.1 Understand the hydrosphere and the impact of humans on local systems and the effects of the hydrosphere on humans. <i>(Earth and Environmental)</i>
Earth history 4.E.2 (<i>Fossils</i>)			8.E.2 Understand the history of Earth and its life forms based on evidence of change recorded in fossil records and landforms. <i>(Earth and Environmental)</i>
Matter 3.P.2 (<i>Properties of Matter</i>) 4.P.2 (<i>Properties of Matter</i>) 5.P.2 (<i>Changes in Matter</i>)	6.P.2 Understand the structure, classifications and physical properties of matter.		8.P.1 Understand the properties of matter and changes that occur when matter interacts in an open and closed container. <i>(Chemistry)</i> <i>(Physical Science)</i> <i>(Physics)</i>
Energy 3.P.3 (<i>Energy Transfer</i>) 4.P.3 (<i>Energy Forms</i>) 5.P.3 (<i>Property Changes</i>)	6.P.3 Understand characteristics of energy transfer and interactions of matter and energy.	7.P.2 Understand forms of energy, energy transfer and transformation and conservation in mechanical systems.	8.P.2 Explain the environmental implications associated with the various methods of obtaining, managing and using energy resources. <i>(Earth and Environmental)</i> <i>(Chemistry)</i> <i>(Physical Science)</i> <i>(Physics)</i>

Forces and motion 3.P.1 (<i>Effect on Motion</i>) 4.P.1 (<i>Effect on Motion</i>) 5.P.1 (<i>Relationship</i>)	6.P.1 Understand the properties of waves and the wavelike property of energy in earthquakes, light and sound waves.	7.P.1 Understand motion, the effects of forces on motion and the graphical representations of motion.	(<i>Physical Science</i>) (<i>Physics</i>)
Living organisms 3.L.1 (<i>Human Body</i>) 5.L.1 (<i>Cells</i>)	6.L.1 Understand the structures, processes and behaviors of plants that enable them to survive and reproduce.	7.L.1 Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry out the basic functions of life.	8.L.1 Understand the hazards caused by agents of diseases that affect living organisms. (<i>Biology</i>)
			8.L.2 Understand how biotechnology is used to affect living organisms. (<i>Biology</i>)
Ecosystems 3.L.2 (<i>Plants</i>) 4.L.1 (<i>Adaptations</i>) 5.L.2 (<i>Plants and Animals</i>)	6.L.2 Understand the flow of energy through ecosystems and the responses of populations to the biotic and abiotic factors in their environment.		8.L.3 Understand how organisms interact with and respond to the biotic and abiotic components of their environment. (<i>Biology</i>)
Evolution and genetics 5.L.3 (<i>Genetics</i>)		7.L.2 Understand the relationship of the mechanisms of cellular reproduction, patterns of inheritance and external factors to potential variation among offspring.	8.L.4 Understand the evolution of organisms and landforms based on evidence, theories and processes that impact the Earth over time. (<i>Earth and Environmental</i>) (<i>Biology</i>)
Molecular biology 4.L.2 (<i>Food</i>)			8.L.5 Understand the composition of various substances as it relates to their ability to serve as a source of energy and building materials for growth and repair of organisms. (<i>Biology</i>)